Langley, Virginia
C.I.A. Building
Project No. 44122

Review of Tentative Sketches dated 2 August 1957

19 September 1957

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Review of Tentative Sketches, dated 2 August 1957

Estimates Division Comments

1. Our review of tentative submission reflects a deficit of $412,000.00

2. It is estimated that the excavation and finishing of the Ground Floor area (approximately 25,000 sq. ft.) presently shown unexcavated will increase the deficit by approximately $250,000 or to a total of $662,000.00.

3. The total deficit is subject to change pending an estimate of partition cost in accordance with revised partition layouts provided by CIA.

4. In view of the estimated deficit which must be eliminated, it is suggested that consideration be given to the following:

   a. Redesign of exterior walls of Cafeteria.

   b. Further investigate current requirements for reservation item covering "Special Air Conditioning for Electronic Data Processing Machines."

   c. Use suspended light fixtures with short stems in lieu of surface mounted.

5. Project Directive "Alternate No. 1. substitute aluminum for steel sash, deduct $67,310." It is believed that a deduction for this alternate is unlikely.

Architectural & General Comments

1. Restudy cafeteria, kitchen, storage and custodial shop area in order that the custodial shops will be located on ground floor near loading dock.

2. Restudy boiler house and substation to afford easier access on a definite roadway through parking area with parked cars protected by islands.

3. Provide holding space for approximately 6 vehicles near each gate house to permit visitor interrogation.

4. Provide barriers at walks to prevent access from driveway and parking areas except for jeep patrol car.

5. Provide extensions to protect parked cars in parking area south of main entrance.

6. Locate flagpoles closer to building.

7. Provide intercepting gutter at entrance ramp to underground parking.

8. Restudy subsurface drainage features to obtain more direct connections of pipes.

9. Part-height partitions specified to be 5' 4" high should be increased to a minimum of 5' 8" high and be provided with 5' 8" high gates or doors.

10. Provide for incinerator chutes (cores A, B, C, & D) with collection rooms in basement at base of each chute. (2 incinerators as indicated is satisfactory)

11. Restudy garage floor elevation with view to providing direct access to elevator in Core B.

12. It is noted that the outline specifications which accompanied the tentatives call for specific quantities of various material or equipment, e.g., clocks, floor duct service fittings, etc. It is to be understood that actual quantities will be determined by requirements and that the stated quantities are for estimating purposes only.

13. Provide parking spaces for approximately 30 vehicles close to loading docks as required on Space Directive Sheet No. 37.

Protection Division Comments

1. The walls separating the interior parking area from the balance of the basement area shall be constructed of material that will have a two-hour fire resistive rating. All openings in these walls shall have Class B labeled self-closing fire doors.

2. Provide two-hour fire resistive rating on all walls and Class B labeled self-closing fire doors for all openings in exit system on both ground and first floor.

3. All stairs shall be enclosed with two-hour fire resistive walls and all stair openings shall have Class B labeled self-closing fire doors.

4. All labeled fire doors shall be shown on the working drawing plans where they occur by note or symbol.

5. The incinerator room door openings shall have Class A self-closing fire doors and the enclosing wall and ceiling shall be of material that has a two-hour fire resistive rating.

Structural Division Comments

1. Your preliminary computations for the cafeteria and auditorium structural frames must be submitted with your intermediate working drawings.

2. The soil investigation drawings classify the hard material as micaceous sandy silt. Locally this material is generally classified as disintegrated rock by other drilling organizations. We do not consider this material to be equivalent to ledge rock and prefer to have the footings bear directly on the disintegrated rock, not using the compacted clay pads as suggested on the tentative sketches. In locations where the footings would bear on solid ledge rock (not disintegrated rock) the rock shall be removed sufficiently to form a well for the footings, not less than one foot in depth, so that the sides of the footing will be poured against the vertical rock sides. There shall be a layer of compacted clay soil not more than 6 inches in depth between the surface of the rock and the bottom of the footing. This clay layer shall have a compaction of not less than 95 per cent. The compaction of this material should be under laboratory control, which should be required in the specifications.

3. In using 8000 psf soil pressure, the footings shall bear on a material classified as micaceous sandy silt, that has a resistance to the sampling spoon of 32 blows to drive it one foot or less.

4. In some instances to reach 32 blow material, it will be necessary to bear on a material that is 10 feet or more below the lowest floor level at the footing location. Where this condition exists, the specification shall allow the contractor an option for using concrete piers, belled at the bottom to have equivalent areas to spread footing that is being replaced.

5. The subsurface water condition at this site does not justify a special membrane protected floor slab on the ground. This office recommends that a 6-inch, steel fabric reinforced, concrete slab, placed on 6 inches of drained porous fill be used to be separated by a layer of fiber reinforced waterproofed paper. The tile drains around the building and under the floor slabs should thoroughly dewater the area. The porous fill under the slabs on the ground, for the upper levels, shall connect with the vertical gravel for the basement walls.

6. For all occupied spaces where the walls are retaining earth, the walls shall be dampproofed with 3-ply membrane (fabric) dampproofing with a protection of 90# roofing felt nailed along the top edges.

7. All tunnels, trenches and pits located below tile drain system or where the tile drain system due to location will not dispose of the subsurface water, shall be waterproofed on the floor, walls and ceilings as necessary, with metallic waterproofing.

8. It is indicated on the tentative sketches that the slabs and beams are to be detailed using bent bars. It has been our policy to use straight top and bottom bars as outlined in our Standard Details. However, if you desire to use bent bars in preference to the straight bars, we will interpose no objection. The use of straight bars throughout will simplify the placing of the steel and we consider that it is more economical.

Building Management Comments

1. We note that a stairway has been provided to the basement in Core "C". Core "B" should also have such a stairway.

2. All exterior stairs should be provided with adequate handrails.

3. The heating and air-conditioning duct systems should be provided with automatic closing fire dampers and other fire-safe features, in accordance with national standard practices.

4. The installation of the oil burning equipment and the oil storage tanks for the boilers at the power house should be made in accordance with latest Pamphlet No. 31 entitled "Standards of the National Board of Fire Underwriters for the Installation of Oil Burning Equipment as Recommended by the National Fire Protection Association."

5. The four 2,000 KVA transformers and the other electrical equipment at the substation should be installed and protected in accordance with the 1956 Edition of the "National Electrical Code."

6. The gas fired incinerators should be installed in accordance with latest Pamphlet No. 82 entitled "Standard of the National Board of Fire Underwriters for Incinerators, as Recommended by the National Fire Protection Association." The gas burning equipment and piping for the incinerator should be installed in accordance with latest Pamphlet No. 54 entitled "Standards of the National Board of Fire Underwriters for the installation of Gas Piping and Gas Appliances in Buildings, as Recommended by the National Fire Protection Association."

7. Trash storage facilities for the cafeteria should be provided near the loading platform.

8. The combination trash and paper baling room is inadequate in size as the paper baling activity will take up the greater part of the space being provided. We will require approximately 1600 sq. ft. additional for trash and baled paper storage. The 2028 sq. ft. indicated for paper baling is satisfactory. It should also be noted that client Agency space requirements in this area cannot be met if the trash and paper baling room is located as shown.

9. It is recommended that garbage be disposed of in the cafeteria area by mechanical means. (check for sewer requirements) Refrigerated storage room for garbage is required.

10. The carpenter shop is adequate as shown, however, the square footage indicated is incorrect. It should read 4050 instead of 2050 sq. ft.

MECHANICAL AND ELECTRICAL DIVISION COMMENTS

1. **Plumbing:**

   (a) Drawings are poorly delineated, and hard to read or interpret. Final working drawings, to be acceptable, must conform to the requirements specified in Section 102.00 of the Mechanical and Electrical Handbook.

   (b) Make all corrections noted on the drawings and in the tentative outline specifications.

   (c) Under the procedure followed by this office, storm-water drainage is considered a mechanical item. Drawing 21-2 should be assigned a 9-OS- number and assembled with other Outside Service drawings in the set, and specified in the "Outside Service" Section of the specifications.

   (d) Water main from elevated storage tank and the loop around the building appear undersized for the maximum demand for fire protection. It is felt these lines should be increased to 12 inches and 10 inches, respectively. Check fire hydrants in Boiler House and Service Area.

   (e) Two tank fill pumps are not considered adequate. We recommend a minimum of three pumps in order to maintain two pumps in service when one is down for repairs.

   (f) Cafeteria and kitchen areas should be shown on 1/4" scale plans. Seating space for large section of the cafeteria appears inadequate.

2. **Air Conditioning, Ventilation:**

   (a) Provide ventilation for photo laboratories and chemical laboratories as indicated under "Special Requirements" on Form 1086a. Air vent or exhaust flues should be provided for dissipation of fumes. Mechanical exhaust will be required in certain areas.

   (b) Heating and cooling system should be arranged so that any of the following spaces can be served independently outside of regular working hours:

Spaces 26-1 thru 17

Spaces 58-26, 59-5

Spaces 89-5 thru 27

Spaces 47-14 & 22/22 Control Center

Telephone Operators Room

Spaces 38-15 thru 18

Spaces 97-25 - (Special Temperature Requirements)

Spaces 95-2 and 95-1

(c) Cooling tower should be located on the ground unless a careful study shows the roof location to be more economical. Cooling tower should be a single unit. The double-row arrangement will give trouble due to recirculation.

3. Heating and Boiler Plant Equiment:

(a) Consideration should be given to operation of the boilers at 100 lbs. gauge pressure in lieu of 150 psi since the maximum steam pressure required as far as we can find out is 45 psi.

(b) Boiler rating should be based on a "continuous rating" (50,000 #/hr) and 200% overload requirement should be omitted.

(c) The capacity of one motor-driven boiler-feed pump should be based on the "continuous output rating" of one boiler and the other two pumps should each have sufficient capacity to take the maximum steam demand.

(d) The forced-draft fans should be of the "axial-flow design" set in the windbox at the boiler front.

(e) The boiler plant design should permit future expansion of all facilities.

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(f) Engineer's figures giving the estimated maximum steam demand on the boiler plant should be furnished.

(g) Ash trench at the boiler fronts should be omitted. This work can easily be performed if conversion to coal is required at a future date.

(h) Provide two locker rooms in the boiler house, and toilets on the operating floor level.

(i) Provide a service road to the fuel-oil tanks.

(j) Indicate on the drawings the area available for the storage of coal.

(k) Engineer's figures of economic fuel analysis on which the fuel was selected for boiler plant, also, his estimated yearly fuel consumption and estimated length of time oil storage will last during period of maximum demand should be furnished.

(l) Furnish a breakdown of the descriptive data separately for each building and not as a total as indicated in the directive. Also the estimated cost for each service should be given and not totaled as indicated in the directive.

(m) Study Diesel-engine generator layout which will permit Diesel-engine generator expansion with the boiler plant expansion.

(n) Provide cranes over the Diesel engine generators.

(o) Provide for the entrance of the mechanical equipment into the building.

(p) Provide all switchgear on a single level.

(q) Provide noise level for refrigeration compressors.

(r) Provide turbine auxiliaries for boiler plant equipment.

(s) Consider lowering stacks if cooling towers are relocated.

(t) Provide for easy delivery of oil fuel.

(u) Provide gas-engine air compressor for Diesel-engine starting.

4. Electrical:

a. Underground ducts should be of fiber or cement-asbestos in lieu of steel. The number should be increased as indicated on marked-up print.

b. Exact locations of duct should be shown on working drawings so as to avoid future extension to main building. Also, the diagonal route shown on submitted print would undoubtedly run afoul of footings. Manholes should be provided for gatehouse runs.

c. Locate wire closets vertically "stacked" if possible. Empty connecting conduit for future use must be provided where closets are not stacked. Arrangement shown for Unit #1, South; Unit #3, Center; and Unit #5, North, are not desirable. Also, other wire closets indicated are not symetrical with those above and below them. This requirement does not apply, of course, to wire closets that will not have any vertical connections with those above or below.

d. Switchboard room in basement must be provided with false waterproof concrete ceiling slab to protect electrical equipment from toilet room and slop-sink closet leaks above, or relocated to avoid the condition.

e. The one-line diagram of electrical service and distribution equipment incorporates throw-over switches on the primaries of transformers (13.8 kv) which are not considered adequate for this particular installation from the standpoint of flexibility and safety. Also, the connection of relatively large 480/208y/120-volt emergency transformer feeders directly to the secondary bus of the 13.8/480-V transformers without overload protection is considered inadvisable.

f. It is suggested that the 4.16 kv starters for compressors be grouped so that the compressor and associated chilled-water and condensing-water pump motors occur in adjacent units.

g. Investigate economy of connecting the compressor auxiliary chilled-water and condensing-water pumps on the 4.16 kv bus. Also, check advantage of eliminating the 4.16 kv installation by serving the air-conditioning compressor motors at 13.8 kv with the auxiliary pumps at 480 V.

h. A separate 34.4 kv incoming line for air conditioning is not desired and arrangements must be made with the power company for the installation of two full-capacity firm lines and associated transformers, etc.

i. The two emergency generators should be provided with a common bus with necessary circuit breakers, etc., for control of the selected load, regardless of which arrangement of distribution of the output is decided upon (Synchronization equipment will be required). A study should be made using three 1000-kw units in lieu of two 1500-kw units.

j. The attached one-line diagrams should be studied and the one most desirable and mutually agreed upon selected for incorporation in the design.

k. Three-conductor 15-kv cables in lieu of single conductors should be used. The neutral conductor for 13.8-kv delta distribution is not required.

l. The neutral ground connection shown on one-line diagram of power plant 480-v switchboard should be omitted. Separate "noncurrent-carrying parts" grounding connection of switchboard, transformer, etc., should be separately carried to ground.

m. The motor-control starters for air-conditioning compressors should be of the same type as the associated pump motor starters, namely, high interrupting capacity fuse, disconnect switch and contactor in lieu of circuit-breaker type as indicated.

n. Since it has not yet been ascertained whether the kitchen equipment will be wholly electric or partially gas-heated, final design cannot be made until this decision has been made.

o. Double-ended type substations with dry-type transformers are considered not as adaptable as individual askarel-filled transformers coupled by bus duct to separate switchboard with drawout, air circuit breakers, because of the space-saving characteristics of the latter which permit fitting of the equipment at columns as well as arranging for future removal and expansion. The use of dry-type transformers in this installation served by overhead lines several miles in length is considered to be a gamble even though lightning arrestors both at the transformers and at the outdoor substation should theoretically protect them.

p. Provision of silver-sand fuses in branch-circuit and distribution panel board is satisfactory where required if they are properly specified and indicated on final design. The use of high interrupting capacity fuses with disconnect switch on line side of motor-control centers as indicated on one-line drawing does not agree with specifications which indicate Cordon-type breakers. It appears that either the disconnect switch or the circuit breaker would not be required and that high interrupting capacity fuses coordinated with the switchboard air circuit breakers feeding the motor-control center would be sufficient. However, it is believed that with 25,000 AIC feeder circuit breakers cascaded through 50,000 AIC main breakers the coordinated type circuit breaker and high interrupting capacity fuse combination would be more easily coordinated if provided only with the individual combination circuit breaker starter units in the control centers for only those motors which require circuit breaker types having capacities of less than 25,000 AIC rather than on the control-center feeder at connection to main bus.

q. Tentative submission outline specifications for electrical work, paragraph E-01 (7), would apply except as otherwise specifically excepted under the section of the specification which covers the particular equipment. For instance, the conduit and wiring for control, indicating and alarm for the horizontal and vertical conveyor system.

r. Paragraph E-02 (d)--Add "feeder connection".

s. Paragraph E0-2 (h)--See previous comment relative use of unit substations.

t. Paragraph E0-3 (b)--See previous comment relative to 34.5 kv service lines.

u. Paragraph E0-4 (3)--From information furnished it is believed that this unit should be 15,000 kva.

v. Paragraphs E0-5 & 6--See previous comments relative grouping and attached one-line diagrams for distribution.

w. Paragraph E0-7--See marked-up prints for tentative increased numbers and comments relative underground fiber or asbestos-cement ducts.

x. Paragraph E0-8--See previous comment relative use of double-ended unit substations with dry transformers.

y. Paragraph E-11--Closed-transition auto transformer starters are considered better for this application than primary resistance.

z. Paragraph E-14 (a)--One-inch home runs are not considered necessary for normal application of loading with a maximum of three circuits using four #12 wires.

aa. Paragraph E-15 (a)--Suggest RHW in lieu of RHRW. Add "for 208Y/120 volts and 175 feet for 480Y/277 volts" at end of sentence.

bb. Paragraph E-15 (b)--Use ungrounded type to obtain extra factor of safety.

cc. Paragraph E-15 (c)--Use three-conductor, ungrounded type.

dd. Paragraph E-16--General type is satisfactory, but must be specified completely rather than by manufacturer's catalog number as is the case for all material and equipment.

ee. Paragraph E-18--PBS will supply guide specifications.

ff. Paragraph E-22--3000 kva noted--drawings indicate 4500 kva. Resolve.

gg. Paragraph E-28--This rating cannot be checked without specific data. However, capacity may be altered to suit requirements as determined by progress of design and criteria as determined by load requirements.

hh. Paragraph E-30 (a)--Lighting and painting in accordance with CAA regulation should be provided if required.

ii. Paragraph E-30 (3) & (2)--Spacing of 100 feet seems not to be required by National Bureau of Standards Handbook 46 entitled "Code for Protection Against Lightning". Also, air terminals on 50-foot centers at intersection of cross ties with laterals on 50-foot centers seem adequate for flat roofs.

jj. Paragraph E-31--A complete supervisory system for transformers and circuit breakers including storage batteries (same as control batteries), etc., should be provided to indicate an alarm at a central point for over-temperature and/or pressure of transformers with inherent means to automatically disconnect same after a predetermined time, indication of position

of various feeder and tie circuit breakers and under-voltage of batteries and position of battery-charging control units.

kk. In addition to the hereinbefore comments the following are submitted:

(1) Provide 3-inch conduit from Roof to space 87-9 (Radio Test Room). This is shown in "Special Requirements" previously furnished.

(2) Provide adequate ducts for eight 5/8-inch coaxial cables from space 89-27 to space 91-26 for roof antennae system.

(3) Investigate economy of locating transformers for 4.16 kv and 480 v secondaries outside of power plant on pad rather than inside, using oil-filled type.

(4) Locate switchgear control and equipment on same level as equipment in power plant.

(5) Also, the following areas and components are furnished in order to determine the design and capacity required for emergency system components. These may be augmented or reduced as approved and/or as required for final coordination.

AREAS & COMPONENTS WHICH ARE TO BE SUPPLIED BY DIESEL GENERATORS DURING AN EMERGENCY

Space 89/5 - 23 — Electric Supply & Air Conditioning — Est. Load 203 kva

Spaces 26/1-27 — Office & Air Conditioning Load

Spaces 58/26 and 59/5 — Electric Supply & Air Conditioning

Spaces 47/14 & 22/22 — Control Center - Electric Supply & Air Conditioning

Spaces 38/15-18 — Telephone Operators Room- Power & Air Conditioning

Heating Plant - Necessary lighting, condensate pumps, boiler feed, etc., to keep plant in operation.

Plumbing Equipment - Basement drain pumps, sewage lift, if any, etc.

Elevators - 2 each out of 4 in cores A, B, C, & D
1 - Director's elevator, 1 " elevator in cafeteria

Emergency Ventilation - Sufficient motors to provide for ventilation to permit occupancy of building - (Air conditioning for emergency is included in emergency loads designated above)

General Lighting - Stairways, exits, reduced hall & corridor lighting

Exterior flood lighting on grounds)
reduced street & parking areas)

ll. Runs of cellular floor and header duct lengthwise of corridor are not desired. Use conduit to feed into terminal cabinets and to header ducts. Eliminate floor junction boxes from corridors.

mm. Cellular floor should be sectionalized so as not to require runs across expansion joints.

nn. Cellular floor layout must be furnished.

oo. Drawing 21-16 shows a ½" screed below the cellular floor element. If this screed is used, there will be less than 1½ inches of concrete above the header duct, contrary to the requirements of the National Electrical Code.

pp. The Chesapeake & Potomac Telephone Company has been setting the following criteria for installation of their system in our office buildings:

(1) Each 20,000 sq. ft. office space:
One telephone equipment room on floor being served. Approximate 9' x 11' size.

(2) Each 2500 sq. ft. office space:
One telephone terminal box, approximately 42" wide x 36" high x 4" deep. Mount as close to base as practicable. Face into corridor.

(3) Header duct shall be 8.5 sq. in. minimum cross section, with 4 sq. in. of header duct per 1000 sq. ft. of office space.

qq. The header ducts for signal and power should be extended from each wire closet to the outside row of cellular units.

rr. Paragraph E-25 of the specifications should include conduit and outlet provisions for sound in the two small theaters on the first floor and for the playing of recorded music in the cafeteria.

ss. Paragraph E-26 of the specifications should call for surface type, wall-mounted, round-face clocks.

tt. Provide conduit and duct for microwave reception and transmission to tie into the main tlephone equipment room.

uu. Provide conduit and outlets for civil defense siren and its controls.

vv. The supervisory security alarm system will be monitored on the outside telephone system wires. The wiring for this monitoring should be run directly to the outside system telephone closets on each floor--not through the telephone terminal cabinets in the corridors.

5. **Illumination:**

(a) "Section thru Wing #1 Looking South" on drawing 21-16 indicates individually-mounted surface-type fluorescent lighting fixtures. As previously stated in comments in office letters of January 14, 1957, and April 18, 1957, this type of installation results in a more expensive wiring cost and tends to produce relatively spotty illumination compared to continuous rows or groups of fixtures consisting of two or more fixtures joined end to end. In order to insure that the minimum in-service intensity of 35 foot-candles will be met, it is suggested that the office lighting layout generally be based on not less than 4 fixture units per row in the 20 x 25-foot bays, arranged in two fixtures consisting of two units each with a spacing of 3 or 4 feet in the center of the bay and not less than 3 fixture units installed end to end per row in the 20 x 20-foot bays. This suggestion is based on using two-lamp fixtures with rows spaced as now shown on drawing 21-57. This would eliminate the necessity of resorting to three-lamp equipment in order to insure the required minimum intensity which appears likely with the individually-mounted fixtures as indicated.

(b) Where ceiling heights in offices will permit, it would be more economical from the standpoint of first cost and maintenance to use a suspended type of lighting fixture, such as the PBS standard type #362, which can be obtained with an over-all suspension length of not over 9 inches. This would result in clear headroom of 8 feet where 8'-9" ceiling height or better exists, and would give not over 2 1/2 inches less clearance than indicated in the section on drawing 21-16.

(c) Obtaining an alternate proposal for recessed fixtures in lieu of surface-mounted is not recommended. Recessed fixtures would increase the cost of the job and be less desirable from the standpoint of illumination.

(d) Corridor fixtures should be arranged with the long dimension of the lighting fixtures in line with the direction of the corridor. They should not be located crosswise with corridor as indicated in the typical lighting layout as that results in scallops of light on corridor wall at ends of fixtures and presents an undesirable appearance.

(e) Spacing of lighting fixtures on 5-foot centers is excessive for corridor lighting. A minimum spacing of 10 feet would provide adequate corridor illumination.

(f) Lighting in toilets should be arranged to suit lavatories, etc., rather than same as typical bays as indicated on drawing 21-57.

(g) Drafting room areas should be provided with a minimum of 50 foot-candles in service. As indicated on the typical lighting layout, they are inadequate for this type of work.

(h) Rather than lampholders (to take bare lamps) for stair lighting, as listed in the outline specifications dated August 2, 1957, it is suggested that a suitable fixture, providing some shielding of the lamp, be provided. If wall brackets are suitable, a fluorescent fixture such as PBS type #406 is suggested.

(i) Lighting of the auditorium will require some study as a preliminary review indicates that some other types of lighting in addition to downlights may have to be developed to light a space of this nature. It is assumed that the reference to PBS standard No. 57 means No. 187 as there is no "No. 57".

(j) Suggest that mounting height of standards for parking area and road lighting be increased for the sake of comfort as well as for better distribution. Investigate possibility of interference with laboratory instruments, etc., from fluorescent lighting equipment in certain areas. C.I.A. will advise of the areas.

(k) Reference to Sections 1105.00, 1107.00, 1108.00 and 1115.00 of the Mechanical and Electrical Engineering Handbook is suggested. Attention is called to the fact that specifications and/or drawings covering lighting fixtures and lighting equipment must be prepared in a manner that will permit competitive bidding. They must not be prepared on the basis of any one particular manufacturer's fixture. Where standard PBS types of fixtures are to be used, they should be referred to by the PBS type number. Where other than PBS standards are required, they should be assigned a letter designation and covered as outlined in the Handbook.

"Lighting Fixtures, etc." should be the subject of a separate section of the specifications and be prepared complete with schedule of fixtures, etc., as outlined in the attached stock lighting fixture specification form.

6. Elevators:

(a) Provide external access to pits of passenger elevator groups in Cores A, C and D. Use steel ships ladder from basement up to a steel grating passageway between all four elevator hoistways, and a doorway into each pit from this passageway. Concrete pit floor should be provided about 10'-0" below ground floor or 11'-6" above basement. The area below pits and above the basement level should be closed off to prevent anyone from gaining access to this space. Substantial structural supports will be required under the buffers and concrete floor in these pits.

(b) Provide external access to pits of Elevators 5 and 6. Pit should be a minimum of 8'-3" deep below basement level. Use a stairway to these pits, if possible, or a ships ladder.

(c) Provide external access to pits of Elevators 7 & 8. Pits should be about 10'-0" below ground floor, similar to elevators in Cores A, C and D. Use a steel ships ladder from basement up to a steel grating passageway in front of hoistways and a doorway into each pit.

(d) Separate all adjoining pits with a wire-mesh partition 7'-0" high. See drawing SD 6-11-1A.

(e) Recommend an overhead-type machine be used on Special Elevator No. 17. The required extension on top of building could be arranged as shown in red on drawings 21-12 and 21-13. Only a part of this area is required for the elevator machine room; however, the larger size penthouse as shown will be required for a balanced exterior appearance of the building. The remaining portion could be used for other purposes. An overhead projection cannot be avoided by the use of a basement elevator machine as a small projection would still be required on the roof over elevator to house overhead sheaves and governor. Access must be provided to these overhead sheaves and the governor for maintenance. If the recommended overhead machine is provided, the special elevator could have a duty of 2500 lbs @ 400 feet per minute speed (gearless machine) which would provide faster, smoother and quieter service.

(f) On the hoistway entrances to Freight Elevators Nos. 18 and 19, recommend a maximum width of 7'-0". For loading and unloading a freight elevator a wide entrance is desirable, but the entrances to the elevator lobbies which serve this elevator scale a width of only 5'-0". With an entrance width of 7'-0", or less, single-speed center opening hoistway and car doors can be used, which is much preferred to two-speed center-opening type which would be required on an 8'-4" wide entrance. The door hangers and operators would be of standard equipment on 7'-0". Are these freight elevators to be designed for class A General Freight Loading as defined in the ASE Code, Rule 207.2 (b)?

(g) Provide data on the dumbwaiter located in Core C of building. Give the floors to be served, and its size and duty. This dumbwaiter does not appear in the project directive or specifications dated August 2, 1957.

(h) A file lift is also required to serve the three-stack levels located north of court #2 similar to file lift No. 21.

(i) Comments and corrections have been made in the Tentative Submission Outline Specifications for Elevator Work, August 2, 1957. If special features are desired on the passenger elevator cars other than those in the Standard Specification, recommend these features be shown on a drawing or clearly described in the specifications, so that bidders can determine the cost to be included in the bids.

(j) Referring to Tentative Submission Outline Specifications for Elevator Work, Paragraph EL-04-Maintenance- the usual practice of PBS is to require the Contractor to furnish maintenance only for ninety days. If it is determined that maintenance for six months is required on this project, paragraph 2-19 of the attached copy of Stock Specification "A" for Elevators should be revised accordingly.

(k) Attached is a set of Stock Specifications "A" and "B" for Elevators with instructions for Architect's use in preparing the specifications. An Elevator Specification separate from the Construction Specification is required for this building.

(l) The attached schedule of elevators for the building (three sheets) dated August 2, 1957, has been marked-up with comments.

7. **Vertical and Horizontal Conveyors:**

Provide a trouble annunciator which will assist the maintenance man in the location of the cause of a shutdown of the system.